Journal of Psychopathology and Behavioral Assessment
https://doi.org/10.1007/s10862-020-09814-7

Low Self-Esteem and Impairments in Emotion Recognition Predict Behavioural Problems in Children

Amy E. Wells[1] · Laura M. Hunnikin[1] · Daniel P. Ash[3] · Stephanie H. M. van Goozen[1,2]

Abstract
Research indicates that low self-esteem and impaired emotion recognition are risk factors for antisocial behaviour (ASB). Self-esteem and emotion recognition are essential for successful social interaction and previous research suggests that self-esteem and emotional intelligence are positively related. However, to our knowledge the relationship between these two risk factors for ASB has not been explored in children with behavioural problems. Thus, this study investigated self-esteem and emotion recognition, their relationship with one another and with behavioural problem severity. Participants were 8–11 year olds with behavioural problems (BP; $n = 78$) who were taking part in an early intervention program, and typically developing controls (TD; $n = 54$). Participants completed a self-esteem questionnaire and a computerised emotion recognition task. Teachers and parents rated children's emotional and behavioural problems. BP participants had significantly lower self-esteem and exhibited an impairment in emotion recognition. Self-esteem and emotion recognition were positively related and inversely associated with behavioural problem severity and they predicted behaviour problems independently of one another. This is the first study to show that self-esteem and emotion recognition are related processes in children with behavioural problems and that both predict behavioural problems. This has important implications for the development of intervention strategies.

Keywords Behavioural problems · Antisocial behaviour · Self-esteem · Self-perception · Emotion recognition · Peer relationships · Self-enhancing bias

Introduction

Self-esteem, or how an individual feels about themselves (Leary and Baumeister 2000), is considered to be an important indicator of psychological functioning (McCauley et al. 2017). People with high self-esteem are generally happier and more likely to enjoy close friendships (Leary et al. 1995). In contrast, low self-esteem is one of the strongest predictors of emotional and behavioural problems (Leary et al. 1995) and has been implicated in a variety of youth problems (Barry et al. 2007), including the development of antisocial behaviour (ASB; Trzesniewski et al. 2006).

Low self-esteem has been reported in numerous antisocial populations including children and adolescents with conduct problems (Barry et al. 2003), adolescents at-risk of future ASB (Barry et al. 2007), adolescents with conduct disorder (CD; Glass et al. 2011) and youth offenders (Matsuura et al. 2010). In addition to cross-sectional studies that have found that antisocial individuals display lower levels of self-esteem than typically developing individuals, longitudinal studies suggest that low self-esteem is predictive of subsequent behaviour problems and ASB. For example, Donnellan et al. (2005) found that 11 year olds with low self-esteem showed an increase in aggression by age 13. Similarly, Trzesniewski et al. (2006) found that individuals who had low self-esteem during adolescence were more likely to have received a criminal conviction during adulthood than those with high self-esteem.

Although the majority of literature exploring the relationship between self-esteem and ASB suggests that low self-esteem is associated with ASB (Walker and Bright 2009), some research indicates that ASB is most likely to occur when a person with *high* self-esteem comes into contact with someone who challenges that self-view (Papps and O'Carroll 1998; Salmivalli 2001). Indeed, aggressive children have been found

✉ Stephanie H. M. van Goozen
vangoozens@cardiff.ac.uk

[1] School of Psychology, Cardiff University, Cardiff, Wales, UK

[2] Department of Clinical Child and Adolescent Studies, Leiden University, Leiden, Netherlands

[3] Department of Criminology and Criminal Justice, University of Northampton, Northampton, UK

to have higher, idealised self-perceptions of themselves compared to non-aggressive children (Hughes et al. 1997) and narcissism (i.e., a grandiose self-view) has been shown to lead to high levels of aggression (Bushman et al. 2009).

There are different explanations that could account for these seemingly conflicting findings. Crucially, when determining whether low or high self-esteem is associated with ASB it is important to consider how self-esteem was defined and measured. Studies that have found high self-esteem to be associated with ASB have often used measures of narcissism as an indicator of high self-esteem (Bushman et al. 2009; Baumeister et al. 1996; Thomaes et al. 2008), therefore assuming that low self-esteem and narcissism are at opposite ends of the same spectrum (Donnellan et al. 2005). However, more recent research suggests that narcissism and self-esteem are best conceptualised as two distinct but related forms of self-perception (Barry et al. 2007) and as such, narcissism and high self-esteem should not be considered synonymous constructs (Barry et al. 2003).

It has been argued that narcissism may be a defence mechanism to hide an individual's feelings of insecurity and actually be an indicator of underlying low self-esteem (Barry et al. 2003). As such, low self-esteem could be a risk factor that links narcissism to aggression. Indeed, in 9–15 year olds displaying symptoms of oppositional defiant disorder (ODD) and CD, it was the combination of low self-esteem *and* high narcissism that was associated with the highest levels of behavioural problems (Barry et al. 2003), providing further evidence that self-esteem and narcissism should be considered separately and that low self-esteem is associated with conduct problems in children and adolescents.

While ASB and behavioural problems appear to be associated with low general self-esteem, this does not appear to be the case for all dimensions of self-perception. A body of research indicates that children with behavioural problems actually perceive their social competence overly optimistically (Hughes et al. 1997, 2001). Indeed, Hughes et al. (1997) found that, while teachers rated aggressive children as having experienced more peer rejection than non-aggressive children, aggressive children and non-aggressive children's self-rated levels of social competence were comparable. Hughes et al. (1997) propose that a self-enhancing bias accounts for the optimistic self-views that children with behavioural problems hold and suggest that this bias exists as a defence mechanism to protect children's sense of security and self-worth (Hughes et al. 1997). On the other hand, it has also been suggested that the bias is a result of a hyposensitivity to negative feedback (Zakriski and Coie (1996). Whatever the underlying reason, the self-enhancing bias appears to be specific to self-perceptions of social competence and quality of peer relationships. Diamantopoulou et al. (2005) investigated peer relations in children with symptoms of aggressive behaviour and ADHD and found that aggressive behaviour was related to more negative self-perceptions of behavioural conduct and lower global self-worth but was *not* related to more feelings of loneliness.

Evidence of a self-enhancing bias in children with behavioural problems adds to the large body of literature that suggests antisocial individuals are impaired in a number of processes related to emotion and social cognition (Hughes et al. 1997), including emotion recognition. Research consistently finds antisocial individuals to display an impairment in the recognition of negative emotions, which is thought to contribute to the development and persistence of ASB (Blair 2003, 2005). An impairment in the ability to recognise facial displays of negative emotions has been found in children with conduct problems (van Goozen 2015), adolescents with CD (Fairchild et al. 2009), and youth offenders (Bowen et al. 2014).

Emotion recognition is a key part of emotional intelligence (Rey et al. 2011) and research suggests there is a positive relationship between emotional intelligence and self-esteem (Ciarrochi et al. 2003; Rey et al. 2011; Schutte et al. 2002). Although self-esteem and emotional intelligence appear to be positively related, to our knowledge this relationship has not been explored in children with behavioural problems. McCauley et al. (2017), however, did explore the relationship between self-esteem and a social-cognitive process closely related to emotion recognition: Theory of Mind (ToM). They found that children with autism spectrum disorder (ASD) showed both, an impairment in ToM and lower self-esteem compared to typically developing individuals. Moreover, ToM and self-esteem were negatively correlated in children with ASD suggesting, not only that self-esteem and socio-cognitive abilities are related, but also that self-esteem is lower in those with impairments in processes related to social cognition. Thus, we might also expect children who show an impairment in emotion recognition to show lower levels of self-esteem than those who do not, and for these two processes to be related,

The current study examined the relation between self-esteem and emotion recognition ability in children with behavioural problems and typically developing controls. We expected children with behavioural problems to report lower global self-esteem and perceive their behavioural conduct more poorly compared to typically developing controls but the two groups would not differ in their self-perceived social competence. We also expected children with behavioural problems to display an impairment in emotion recognition. Given the relationship between self-esteem and emotional intelligence (Schutte et al. 2002) and the fact that self-esteem appears to emanate from processes closely linked to social cognition, including emotion recognition (McCauley et al. 2017), we expected self-esteem and emotion recognition to be related and both to be associated with the severity of behavioural problems.

Method

Ethical Statement

All aspects of the research were approved by the Cardiff University School of Psychology Research Ethics Committee. Informed written consent was provided by the participant's parents/guardians and informed written assent was obtained for the participants.

Participants

132 children (102 male) aged 8–11 years ($M = 9.37$, $SD = .98$) took part from mainstream primary schools across England and Wales. Participants were assigned to one of two groups: the behavioural problems group (BP; $n = 78$) or the typically developing group (TD; $n = 54$). Participants in the BP group were part of an early intervention program and referred into the study by their teachers, family support workers or police community support officer because they showed substantial behavioural and/or emotion problems. The children in the BP group did not have a formal mental health diagnosis and their behavioural and/or emotional problems were confirmed by teacher report via the Strengths and Difficulties Questionnaire (SDQ; Goodman 1997). Children scoring in above average range for conduct and/or peer problems (≥ 3 out of 10) and/or below average range for prosocial behaviour (≤ 5 out of 10) were eligible to be included in the BP group (see Hunnikin et al. 2019, for a detailed description of the eligibility criteria). Children in the TD group were referred by their teachers for not showing behavioural or emotion problems. This was confirmed by total SDQ scores in the 'close to average' range.

Materials

Demographics and IQ

The two subset form of the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler 1999; vocabulary and matrix reasoning) was used to provide an estimated IQ score. The vocabulary subtest was used to provide an estimate of verbal IQ. Socioeconomic status (SES) was estimated using the Office for National Statistics estimates of average household total weekly income based on each participant's postcode (Low = £0–£520; Middle = £521–£670; High = £671+; Hubble et al. 2015).

Strengths and Difficulties Questionnaire (SDQ)

The SDQ (Goodman 1997) is a 25-item questionnaire that assess areas of emotional and behavioural difficulties and strengths. It is comprised of five subscales; conduct problems, peer problems, hyperactivity, emotional problems and prosocial. Summing all but the last of these subscales together gives a 'total difficulties' score which provides a measure of mental health and well-being (Beardsmore 2015). The SDQ is a widely used, valid and reliable measure (Stone et al. 2010) and predicts consistent behavioural problems (Wilson et al. 2013). In addition to the total score, the conduct problems and peer problems subscales were used to provide objective measures of children's behavioural conduct and social competence, respectively, in the current study. Cronbach's α for the total SDQ score was 0.72 indicating good internal consistency.

Self-Esteem

The Self Perception Profile for Children (SPPC; Harter 1982) was used to provide an indicator of participants' self-esteem and self-perception. The SPCC is a self-report questionnaire that assesses how children evaluate themselves over different areas of their life. It is a valid, reliable measure and is the most widely used questionnaire for assessing self-esteem in children (Muris et al. 2003). The current study assessed participants' self-perceived social competence and behavioural conduct as well as their global self-worth. Social competence refers to the child's perceived knowledge of how to make friends while behavioural conduct refers to the degree to which one likes the way one behaves and global self-worth is analogous to overall self-esteem, referring to how much one likes oneself as a person. Each subscale contains six items and all items are scored on a scale of one to four where one reflects the lowest perceived adequacy and four reflects the highest. Cronbach's α for the current study was 0.82 indicating good internal consistency.

Facial Emotion Recognition

The Facial Emotion Recognition (FER; Hunnikin et al. 2019) test was used to measure children's ability to recognise faces displaying happy, sad, fearful, angry and neutral expressions. Children viewed 60 faces on a laptop displaying one of the five expressions at either a low or a high intensity. Each face was presented alone for three seconds and then with the question "What emotion (if any) is this person showing?" with the five emotion labels presented in a numbered list either to the left or right of the face and participants were asked to indicate their response on the computer.

Procedure

All parts of the study were completed at the participant's school. All participants completed a research session, lasting approximately 75 min, conducted by a trained researcher which included other assessments as part of a larger study.

Statistical Analyses

Differences in demographic and behavioural characteristics between groups were analysed using independent samples t-tests for continuous variables and X^2 tests for binary variables. Spearman's rho correlations were used to examine relationships between behavioural characteristics, emotion recognition and self-esteem and a multiple regression analysis was used to determine whether emotion recognition and self-esteem, could independently of each other, predict behavioural problems.

Percent correct for total emotion recognition was calculated by taking the mean score of happy, sad, fear, anger and neutral recognition and percent correct for negative emotions was calculated by taking the mean score of sad, fear and anger recognition. Due to the verbal nature of tasks and research that has found a relationship between verbal ability and both emotional intelligence (Hogan et al. 2010) and self-perception (Simon and Simon 1975), verbal IQ was included as a covariate in analyses. Multivariate analyses of covariance (MANCOVA) were used to determine any between group differences for scores on the SPPC and emotion recognition. Bonferroni corrections were used to adjust for multiple comparisons. Effect sizes were calculated as partial eta squared (n_p^2; small ~.03, medium ~.06, ≥.14; Cohen 1988).

Results

Demographic and Behavioural Data

Participants in the TD group were significantly older, had a higher SES, IQ and verbal IQ than the BP group (see Table 1). Verbal IQ was included as a covariate in the analyses, but IQ, age and SES were not. SES was not significantly correlated with performance on either the FER or SPPC ($p < .05$), age was only significantly correlated with the SPPC, $r(130) = .216$, $p = .013$, and IQ, $r(130) = .352$, $p < .001$, and VIQ $r(130) = .298$, $p = .001$ were only significantly correlated with performance on the FER.[1] The groups were matched on gender and there was no difference in emotion recognition accuracy by gender, $t(131) = -.001$, $p = 1$, nor was there an effect of gender of performance on the self-perception profile, $t(131) = -.416$, $p = .678$. Participants in the TD group had a significantly lower total SDQ score, showed significantly fewer conduct and peer problems than the BP group.

[1] Hierarchical regression analyses showed that FER significantly predicted behavioural problems even when controlling for IQ and that while performance on the SPPC significantly predicted behavioural problems, age did not.

Table 1 Demographic and behavioural characteristics of participants

	TD ($n = 78$)	BP ($n = 54$)	p value
Age (years)	9.74 (1.01)	9.12 (.88)	<.001
IQ	102.94 (18.66)	92.22 (13.68)	<.001
Verbal IQ	53.25 (10.95)	45.37 (10.94)	<.001
Gender			.729
% Male	75.9	78.5	
% Female	24.1	21.5	
SES			.001
% Low	0	6.3	
% Medium	21.7	51.6	
% High	78.3	42.2	
SDQ score			
Total	7.84 (3.14)	17.40 (6.05)	<.001
Conduct Problems	1.22 (1.05)	4.00 (2.69)	<.001
Peer Problems	1.88 (1.51)	3.71 (2.25)	<.001

Means are presented with standard deviations in brackets. *IQ* intelligence quotient (two-subtest WASI), *SES* socioeconomic status, *SDQ* Strengths and Difficulties Questionnaire, *TD* typically developing group, *BP* behavioural problem group

Self-Esteem

BP participants scored significantly lower than TD participants for the behavioural conduct, $F(1, 123) = 20.653$, $p < .001$, $n_p^2 = .144$, 95% CI [−4.38, −1.72], and global, $F(1,123) = 11.164$, $p = .001$, $n_p^2 = .083$, 95% CI [−3.94, −1.01], subscales of the self-perception profile. There was no difference between BP and TD participants on the social competence subscale, $F(1,123) = 1.064$, $p = .304$, $n_p^2 = .009$, 95% CI [−1.37, .431] (see Fig. 1).

Emotion Recognition

BP participants scored significantly lower than TD participants for total, $F(1,123) = 9.17$, $p = .003$, $n_p^2 = .069$, 95% CI [−9.43,-1.98], negative, $F(1,123) = 4.66$, $p = .033$, $n_p^2 = .037$, 95% CI [−10.39,-.451] and neutral recognition, $F(1,123) = 5.19$, $p = .024$, $n_p^2 = .041$, 95% CI [−15.33,-1.08]. There was no difference between BP and TD participants for happy recognition, $F(1,123) = 3.92$, $p = .050$, $n_p^2 = .031$, 95% CI [−8.11,-4.85] (see Fig. 2).

The Relationship between Behavioural Problems, Emotion Recognition and Self-Esteem

The behavioural, global and total scores on the SPPC were positively correlated with emotion recognition ability. Total SDQ score was significantly, inversely correlated with both emotion recognition ability, and behavioural, global and total

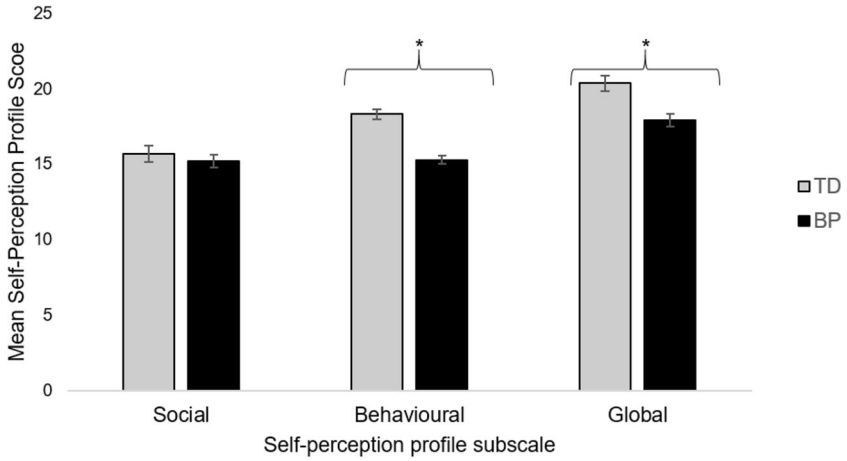

Fig. 1 Estimated marginal means of social, behavioural and global self-perception profile scores. Error bars are set at ±1 standard error. * = $p < .05$. TD = typically developing group, BP = behavioural problems group

scores on the SPPC,[2] the conduct problems subscale of the SDQ was inversely correlated with behavioural, global and total scores of the SPPC and the peer problems subscale of the SDQ was negatively correlated with social, behavioural and total scores of the SPPC (see Table 2).

Multiple regression analysis was used to determine whether emotion recognition and self-esteem predicted behavioural problems (as indicated by total SDQ score). The multiple regression model significantly predicted total SDQ score, $F(2, 125) = 23.725$, $p < .001$, adjusted $R^2 = .264$. Both emotion recognition and self-esteem significantly added to the prediction, $p < .05$ (see Table 3).

Discussion

The first aim of the current study was to assess and compare self-esteem and emotion recognition in children with behavioural problems and typically developing controls. Our results confirm previous findings of low global self-esteem, low self-perceptions of behavioural conduct and impaired emotion recognition in children with behavioural problems and support the existence of a 'self-enhancing bias' regarding self-perceived social competence. The second aim of the study was to explore the relationships between self-esteem, emotion recognition and behavioural characteristics. For the first time our results indicate that self-esteem and emotion recognition are positively related and inversely associated with severity of behavioural problems. Moreover, we found that self-esteem and emotion recognition, independently of each other, predicted behavioural problems.

The results of the current study are in line with previous work that has found self-esteem to be lower in children and adolescents with behavioural and conduct problems compared to typically developing controls (Barry et al. 2003; Glass et al. 2011). In addition, the current study demonstrates that low self-esteem predicted behavioural problems independently of an impairment in emotion recognition, a neuropsychological correlate of, and risk factor for, ASB (van Goozen 2015). While both global self-esteem and self-perceived behavioural conduct were lower in children with behavioural problems than in typically developing controls, there was no difference between the two groups in self-perceptions of their social competence. This is in contrast to results on the SDQ which showed that both parents and teachers reported that children with behavioural problems displayed a significantly higher number of peer problems than the typically developing control children. This confirms previous suggestions that children with behavioural problems view their own social competence overly optimistically, resulting in a 'self-enhancing bias' (Hughes et al. 1997).

The current study found that children with behavioural problems had lower self-esteem and impaired negative emotion recognition compared to typically developing controls. Moreover, this is the first study to show that self-esteem and emotion recognition are positively related, significantly expanding on previous work that has suggested such a relationship might exist. The Research Domain Criteria (RDoC) is part of a recent attempt to create new ways of classifying mental illness; it advocates studying the processes underlying mental health problems (Insel et al. 2010). The RDoC identified six primary domains of behavioural functioning, one of which was the 'systems for social processes'. This dimension encompasses processes, behaviour and mechanisms which mediate responses in interpersonal settings (https://www.nimh.nih.gov/research-priorities/rdoc/definitions-of-the-rdoc-domains-and-constructs.shtml). Both emotion recognition and self-perception were identified as core constructs in this domain and research shows that both self-esteem/self-perception and emotion recognition are essential for successful social interaction (Hunnikin and van Goozen 2018; Mann et al. 2004). This study is the first to show that these two processes, both necessary for successful functioning in interpersonal settings, are related to one another.

[2] *NB* a higher score on the SDQ is reflective or more problem behaviours and difficulties whereas a higher score in the SPPC is reflective of higher self-esteem.

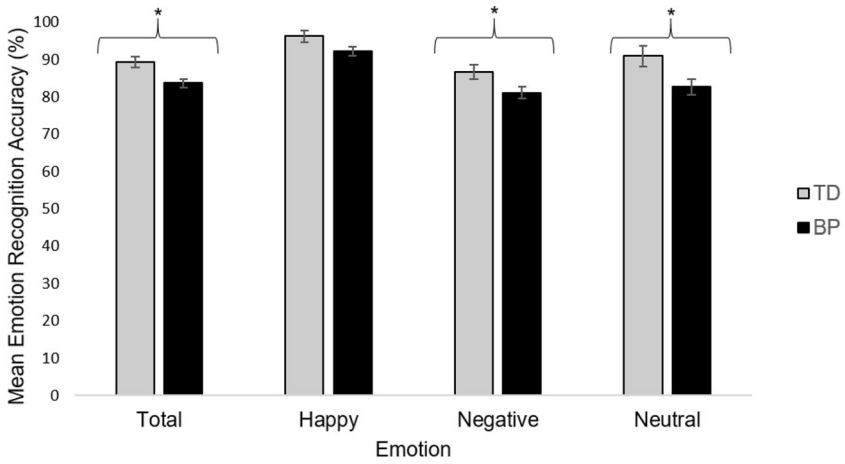

Fig. 2 Estimated marginal means of total, happy, negative and neutral emotion recognition scores. Error bars are set at ±1 standard error. * = $p < .05$. TD = typically developing group, BP = behavioural problems group

Although the current study shows that self-esteem and emotion recognition are related, a hierarchical regression analysis found that self-esteem and emotion recognition predicted behavioural problems independently of one another. This suggests that while they are related processes, they are distinct risk factors for ASB. This has important implications when formulating interventions and treatment strategies for individuals displaying behavioural problems. Such strategies, and policy and practice decisions need to take into account that while self-esteem and emotion recognition are related process and risk factors for and correlates of ASB, they need to be considered separately.

The current study found inverse associations between both global self-esteem and self-perceived behavioural conduct, on the one hand, and conduct problem severity and total SDQ score, an indicator of mental health and well-being, on the other. This is in line with previous research that has found that lower levels of self-esteem in adolescence are associated with/ higher levels of criminal activity and mental health problems in adulthood (Trzesniewski et al. 2006). Like self-esteem, emotion recognition was found to be inversely associated with total SDQ score and in addition, an inverse association was also found between peer problems and emotion recognition. Good emotion recognition enables individuals to initiate and maintain social relationships (Hunnikin and van Goozen 2018) and the inverse relationship between emotion recognition and peer problems demonstrates that the reverse is also true.

Although the current findings offer promising new avenues for research it is important to acknowledge the limitations of this study. There were differences between the BP and TD groups in terms of demographic characteristics (SES, IQ, age) and as such we cannot rule out their contribution to our findings. SES was not associated with either self-perception or emotion recognition ability while age was significantly related to performance on the SPPC, but not to performance on the FER, and IQ was significantly related to performance on the FER, but not to performance on the SPPC. However, hierarchical regression analyses showed that self-perception and emotion recognition both significantly predicted behavioural problems even when controlling for age and IQ respectively. It therefore seems unlikely that differences in demographic characteristics are responsible for the difference between BP and TD groups in self-perception and emotion recognition. However, future research should ensure

Table 2 Relationship between behavioural problems, emotion recognition and self-esteem

	SDQ			FER	SPPC			
	1.Total	2.Conduct	3.Peer	4.Total	5.Social	6.Behav	7.Global	8.Total
1	–							
2	.694**	–						
3	.610**	.193*	–					
4	−.326**	−.168	−.194*	–				
5	−.169	−.131	−.212*	.123	–			
6	−.500**	−.528**	−.220*	.223**	.798**	–		
7	−.300**	−.261**	−.151	.183*	.807**	.178*	–	
8	−.459**	−.471**	−.239**	.224**	.428**	.798**	.807**	–

Values represent Spearman's rho. Correlations $n = 93$. * = correlation is significant at the 0.05 level, ** = correlations is significant at the 0.01 level. *SDQ* Strengths and Difficulties Questionnaire, *FER* facial emotion recognition, *SPPC* Self-Perception Profile for Children

Table 3 Summary of Multiple Regression Analysis

	B	SE_B	β	*p* value
Intercept	45.301	5.096		
Emotion Recognition	−.127	.055	−.185	.022
Self-esteem	−.410	.075	−.438	<.001

B unstandardized regression coefficient, SE_B = standard error of the coefficient, *β* standardized coefficient

participant groups are matched to confirm that any differences in these processes are attributable to behavioural problems and not due to differences in demographic characteristics. A further limitation of the current study is the heterogeneous nature of the sample; children were included in the behavioural problems group if they displayed a high number of peer problems and/or conduct problems, and/or low levels of prosocial behaviour. Future research could explore self-esteem and emotion recognition in more narrowly defined samples and neurodevelopmental disorders characterised by externalising problems to establish whether the same results are found as in the current study.

Along with low self-esteem and impaired emotion recognition ability, a host of other risk factors have been implicated in the development of ASB. Understanding how these risk factors interact with one another, as well as with behaviour, is crucial for improving policy and practice. Future research should expand on the research conducted in the current study and explore the relationships between other risk factors for ASB. Understanding how risk factors interact, and how this may lead to the development of ASB may help with the early identification of children at-risk for conduct problems and enable them to receive help and support at the earliest point.

The current study compared self-esteem and emotion-recognition in children who were identified by their teachers as having behavioural problems to a group of typically developing controls, and examined the relationship between self-esteem, emotion recognition and severity of behavioural problems. Our results indicate that children with behavioural problems have lower global self-esteem, poorer perceptions of their behaviour and display an impairment in emotion recognition compared to typically developing children. There was no difference, however, self-perceived social competence did not differ between the two groups which may be indicative of a self-enhancing bias in children with behavioural problems. Self-esteem and emotion recognition were positively related and both were inversely associated with severity of behavioural problems. Moreover, they both predicted behavioural problems independently of one another. Our findings indicate that the well-documented impairments in self-esteem and emotion recognition in those with behavioural problems may be related. The impairments in these related, but distinct processes, should be taken into account when considering the development of intervention and prevention programmes for children exhibiting ASB.

Acknowledgements We are extremely grateful to all children, their families and schools for taking part. We would like to thank Northamptonshire Police Early Intervention Team for their assistance with this study and Melanie Smith for her help with recruitment.

Funding information This research was supported by an Economic and Social Research Council studentship (awarded to AEW) and an ESRC Impact Acceleration grant (514845 awarded to SHMvG).

Compliance with Ethical Standards

Conflict of Interest The funding sources had no role in the study design, collection, analysis or interpretation of data, the writing of the article or decision to submit the article for publication. The authors declare no other conflicts of interest.

References

Barry, C. T., Frick, P. J., & Killian, A. L. (2003). The relation of narcissism and self-esteem to conduct problems in children: A preliminary investigation. *Journal of Clinical Child and Adolescent Psychology, 32*(1), 139–152. https://doi.org/10.1207/s15374424jccp3201_13.

Barry, C. T., Grafeman, S. J., Adler, K. K., & Pickard, J. D. (2007). The relations among narcissism, self-esteem, and delinquency in a sample of at-risk adolescents. *Journal of Adolescence, 30*(6), 933–942. https://doi.org/10.1016/j.adolescence.2006.12.003.

Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review, 103*(1), 5–33.

Beardsmore, R. (2015). Measuring National Well-Being: Insights into Children's mental health and well-being. *Office for National Statistics, 1*(1), 1–9.

Blair, R. J. R. (2003). Facial expressions, their communicatory functions and neuro–cognitive substrates. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences, 358*(1431), 561–572. https://doi.org/10.1098/rstb.2002.1220.

Blair, R. J. R. (2005). Applying a cognitive neuroscience perspective to the disorder of psychopathy. *Development and Psychopathology, 17*(3), 865–891. https://doi.org/10.1017/S0954579405050418.

Bowen, K. L., Morgan, J. E., Moore, S. C., & van Goozen, S. H. (2014). Young offenders' emotion recognition dysfunction across emotion intensities: Explaining variation using psychopathic traits, conduct disorder and offense severity. *Journal of Psychopathology and Behavioral Assessment, 36*(1), 60–73. https://doi.org/10.1007/s10862-013-9368-z.

Bushman, B. J., Baumeister, R. F., Thomaes, S., Ryu, E., Begeer, S., & West, S. G. (2009). Looking again, and harder, for a link between low self-esteem and aggression. *Journal of Personality, 77*(2), 427–446. https://doi.org/10.1111/j.14676494.2008.00553.x.

Ciarrochi, J., Wilson, C. J., Deane, F. P., & Rickwood, D. (2003). Do difficulties with emotions inhibit help-seeking in adolescence? The role of age and emotional competence in predicting help-seeking intentions. *Counselling Psychology Quarterly, 16*(2), 103–120. https://doi.org/10.1080/0951507031000152632.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. New York, NY: Routledge Academic.

Diamantopoulou, S., Henricsson, L., & Rydell, A. M. (2005). ADHD symptoms and peer relations of children in a community sample: Examining associated problems, self-perceptions, and gender differences. *International Journal of Behavioral Development, 29*(5), 388–398. https://doi.org/10.1177/01650250500172756.

Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science, 16*(4), 328–335 https://doi.org/10.1111%2Fj.0956-7976.2005.01535.x.

Fairchild, G., Van Goozen, S. H., Calder, A. J., Stollery, S. J., & Goodyer, I. M. (2009). Deficits in facial expression recognition in male adolescents with early-onset or adolescence-onset conduct disorder. *Journal of Child Psychology and Psychiatry, 50*(5), 627–636. https://doi.org/10.1111/j.1469-7610.2008.02020.x.

Glass, K., Flory, K., Martin, A., & Hankin, B. L. (2011). ADHD and comorbid conduct problems among adolescents: Associations with self-esteem and substance use. *ADHD Attention Deficit and Hyperactivity Disorders, 3*(1), 29–39.

Goodman, R. (1997). The strengths and difficulties questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*(5), 581–586. https://doi.org/10.1111/j.1469-7610.1997.tb01545.x.

Harter, S. (1982). The perceived competence scale for children. *Child development*, 87-97.

Hogan, M. J., Parker, J. D., Wiener, J., Watters, C., Wood, L. M., & Oke, A. (2010). Academic success in adolescence: Relationships among verbal IQ, social support and emotional intelligence. *Australian Journal of Psychology, 62*(1), 30–41. https://doi.org/10.1080/00049530903312881.

Hubble, K., Bowen, K. L., Moore, S. C., & Van Goozen, S. H. (2015). Improving negative emotion recognition in young offenders reduces subsequent crime. *PLoS One, 10*(6), e0132035. https://doi.org/10.1371/journal.pone.0132035.

Hughes, J. N., Cavell, T. A., & Grossman, P. B. (1997). A positive view of self: Risk or protection for aggressive children? *Development and Psychopathology, 9*(1), 75–94. https://doi.org/10.1017/S0954579497001077.

Hughes, J. N., Cavell, T. A., & Prasad-Gaur, A. (2001). A positive view of peer acceptance in aggressive youth risk for future peer acceptance. *Journal of School Psychology, 39*(3), 239–252. https://doi.org/10.1016/S0022-4405(01)00067-X.

Hunnikin, L. M., & van Goozen, S. H. (2018). How can we use knowledge about the neurobiology of emotion recognition in practice? *Journal of Criminal Justice, 65*, 101537. https://doi.org/10.1016/j.jcrimjus.2018.01.005.

Hunnikin, L. M., Wells, A. E., Ash, D. P., & Van Goozen, S. H. (2019). The nature and extent of emotion recognition and empathy impairments in children showing disruptive behaviour referred into a crime prevention programme. *European Child & Adolescent Psychiatry*, 1-9. https://doi.org/10.1007/s00787-019-01358-w.

Insel, T., Cuthbert, B., Garvey, M., Heinssen, R., Pine, D. S., Quinn, K., ... & Wang, P. (2010). Research domain criteria (RDoC): toward a new classification framework for research on mental disorders. https://doi.org/10.1176/appi.ajp.2010.09091379.

Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. Advanced Experimental Social Psychology, 32, 1–62. Academic Press. https://doi.org/10.1016/S0065-2601(00)80003-9.

Leary, M. R., Schreindorfer, L. S., & Haupt, A. L. (1995). The role of low self-esteem in emotional and behavioral problems: Why is low self-esteem dysfunctional? *Journal of Social and Clinical Psychology, 14*(3), 297–314. https://doi.org/10.1521/jscp.1995.14.3.297.

Mann, M. M., Hosman, C. M., Schaalma, H. P., & De Vries, N. K. (2004). Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research, 19*(4), 357–372. https://doi.org/10.1093/her/cyg041.

Matsuura, N., Hashimoto, T., & Toichi, M. (2010). The characteristics of AD/HD symptoms, self-esteem, and aggression among serious juvenile offenders in Japan. *Research in Developmental Disabilities, 31*(6), 1197–1203. https://doi.org/10.1016/j.ridd.2010.07.026.

McCauley, J. B., Harris, M. A., Zajic, M. C., Swain-Lerro, L. E., Oswald, T., McIntyre, N.,…, Solomon, M. (2017). Self-esteem, internalizing symptoms, and theory of mind in youth with autism Spectrum disorder. *Journal of Clinical Child and Adolescent Psychology,* 1–12. https://doi.org/10.1080/15374416.2017.1381912.

Muris, P., Meesters, C., & Fijen, P. (2003). The self-perception profile for children: Further evidence for its factor structure, reliability, and validity. *Personality and Individual Differences, 35*(8), 1791–1802. https://doi.org/10.1016/S0191-8869(03)00004-7.

Papps, B. P., & O'Carroll, R. E. (1998). Extremes of self-esteem and narcissism and the experience and expression of anger and aggression. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression, 24*(6), 421–438. https://doi.org/10.1002/(SICI)1098-2337(1998)24:6%3C421::AID-AB3%3E3.0.CO;2-3.

Rey, L., Extremera, N., & Pena, M. (2011). Perceived emotional intelligence, self-esteem and life satisfaction in adolescents. *Psychosocial Intervention, 20*(2), 227–234.

Salmivalli, C. (2001). Feeling good about oneself, being bad to others? Remarks on self-esteem, hostility, and aggressive behavior. *Aggression and Violent Behavior, 6*(4), 375–393. https://doi.org/10.1016/S1359-1789(00)00012-4.

Schutte, N. S., Malouff, J. M., Simunek, M., McKenley, J., & Hollander, S. (2002). Characteristic emotional intelligence and emotional well-being. *Cognition & Emotion, 16*(6), 769–785. https://doi.org/10.1080/02699930143000482.

Simon, W. E., & Simon, M. G. (1975). Self-esteem, intelligence and standardized academic achievement. *Psychology in the Schools, 12*, 97–100.

Stone, L. L., Otten, R., Engels, R. C., Vermulst, A. A., & Janssens, J. M. (2010). Psychometric properties of the parent and teacher versions of the strengths and difficulties questionnaire for 4-to 12-year-olds: A review. *Clinical Child and Family Psychology Review, 13*(3), 254–274. https://doi.org/10.1007/s10567-010-0071-2.

Thomaes, S., Bushman, B. J., Stegge, H., & Olthof, T. (2008). Trumping shame by blasts of noise: Narcissism, self-esteem, shame, and aggression in young adolescents. *Child Development, 79*(6), 1792–1801. https://doi.org/10.1111/j.1467-8624.2008.01226.x.

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental Psychology, 42*(2), 381. https://psycnet.apa.org/doi/10.1037/0012-1649.42.2.381

van Goozen, S. H. (2015). The role of early emotion impairments in the development of persistent antisocial behavior. *Child Development Perspectives, 9*(4), 206–210. https://doi.org/10.1111/cdep.12134.

Walker, J. S., & Bright, J. A. (2009). False inflated self-esteem and violence: A systematic review and cognitive model. *The Journal of Forensic Psychiatry & Psychology, 20*(1), 1–32. https://doi.org/10.1080/14789940701656808.

Wechsler, D. (1999). *Manual for the Wechsler abbreviated intelligence scale (WASI)*. San Antonio: The Psychological Corporation.

Wilson, P., Bradshaw, P., Tipping, S., Henderson, M., Der, G., & Minnis, H. (2013). What predicts persistent early conduct problems? Evidence from the growing up in Scotland cohort. *Journal of Epidemiology and Community Health, 67*(1), 76–80. https://doi.org/10.1136/jech-2011-200856.

Zakriski, A. L., & Coie, J. D. (1996). A comparison of aggressive-rejected and nonaggressive-rejected children's interpretations of self-directed and other-directed rejection. *Child Development, 67*(3), 1048–1070. https://doi.org/10.1111/j.1467-8624.1996.tb01782.x.